

Two new species of shell-inhabiting tanaidaceans (Crustacea, Peracarida, Tanaidacea, Pagurapseudidae, Pagurapseudinae) from the shallow sublittoral off Vanuatu

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ABSTRACT

Recent Pacific collections included numerous specimens of gastropod-shell-inhabiting tanaidaceans of the subfamily Pagurapseudinae, from shallow waters off Vanuatu (7 to 21 m depth). The two sympatric species present are new to science, and are described herein. *Pagurapseudes queiroi* n. sp. is distinguished from other species with identical antennular flagellum and uropod segmentation by having only two pairs of pleopods (the other species having at least three pairs), and a large dorsal plumose seta, arising from a distinct tubercle on the merus of pereopod 1, *inter alia*. *Macrolabrum mansoris* n. sp. has a characteristic rostrum morphology, and three segments in the main flagellum of the antennule (all other congeneric species having either two or four segments).

RÉSUMÉ

Deux nouvelles espèces de tanaïdacés vivant dans des coquilles (Crustacea, Peracarida, Tanaidacea, Pagurapseudidae, Pagurapseudinae) du sublittoral peu profond du Vanuatu.

Des récoltes récentes dans le Pacifique comprennent de nombreux spécimens de tanaïdacés de la sous-famille des Pagurapseudinae vivant dans des coquilles de gastéropodes des eaux peu profondes au large du Vanuatu (7 à 21 m de profondeur). Deux espèces sympatriques sont nouvelles pour la science et sont décrites ici. *Pagurapseudes queiroi* n. sp. se distingue des autres espèces possédant un flagelle antennulaire identique et une segmentation de l'uropode par la présence de seulement deux paires de pléopodes (les autres espèces ayant au moins trois paires), et une grande soie dorsale plumeuse, émergeant d'un tubercule distinct sur le merus du péréiopode 1, entre autres. *Macrolabrum mansoris* n. sp. possède un rostre à la morphologie caractéristique, et le flagelle principal de l'antennule est divisé en trois segments (toutes les autres espèces du genre ont deux ou quatre segments).

KEY WORDS

Crustacea,
Tanaidacea,
Apseudomorpha,
Macrolabrum,
Pagurapseudidae,
Pagurapseudes,
Vanuatu,
South Pacific,
new species.

MOTS CLÉS

Crustacea,
Tanaidacea,
Apseudomorpha,
Macrolabrum,
Pagurapseudidae,
Pagurapseudes,
Vanuatu,
Pacifique sud,
espèces nouvelles.

INTRODUCTION

The intensive sampling by cruises of the Tropical Deep-Sea Benthos programme (formerly “campagnes MUSORSTOM”) over the last twenty years, largely from New Caledonia and its surroundings (see Richer de Forges 1990; Crosnier *et al.* 1997), has generated, *inter alia*, a diverse collection of Western Pacific tanaidacean material. This material has been kindly made available to me for analysis. Previously, Bamber (2006) described four new species of tanaidomorph from shallow waters (≤ 20 m) around New Caledonia; Bamber & Boxshall (2006) described a new tanaid of the Langitaninae Sieg, 1980 (*Mekon solidomala*) with its associated copepod parasite (*Arhizorhinus mekonicola* Bamber & Boxshall, 2006) from off New Caledonia at depths between 440 and 700 m (the upper bathyal slope); and Bamber (2007) described six species of apseudomorph collected from the bathyal slope (410–1807 m) off New Caledonia, including three species in the family Pagurapseudidae Lang, 1970.

Tanaidaceans of the subfamily Pagurapseudinae of the family Pagurapseudidae inhabit empty gastropod shells, in a similar manner (but at a much smaller size) to hermit crabs (pagurids); indeed, they show examples of convergent evolution with the pagurids, such as a comparatively elongate first pereopod, a twisted pleon, a reduced number of pleopods and (often) a size dimorphism in the chelipeds. These pagurapseudids also show a unique morphological adaptation to their shell-inhabiting mode of life, in the presence of flat-topped, rounded “sucker-like” spines on the merus, carpus and propodus of each the posterior five pairs of pereopods.

MATERIAL AND METHODS

During the SANTO 2006 Expedition, further and extensive material of pagurapseudid tanaidaceans was discovered inhabiting microgastropods collected at 7 to 21 m depth off the island of Santo, in Vanuatu. For a narrative of the expedition, see Bouchet *et al.* (2008), and for a review of the geography and natural history of Santo, we refer to Bouchet *et al.* (in press).

The material comprised 159 individuals, representing two new species, one in each of the genera *Pagurapseudes* Whitelegge, 1901, and *Macrolabrum* Băcescu, 1976, which are described below.

Type material has been lodged in the Muséum national d'Histoire naturelle, Paris (MNHN) and The Natural History Museum, London (BMNH) and a few paratypes were retained by the author. Morphological terminology is as in Bamber & Sheader (2005), including the use of the term “segments” for serially repetitive body parts, notably those of the antennular and antennal flagella and uropod rami which are without independent musculature. The higher taxonomy is based on Guțu & Sieg (1999).

SYSTEMATICS

Suborder APSEUDOMORPHA Sieg, 1980
 Superfamily APSEUDOIDEA Leach, 1814
 Family PAGURAPSEUDIDAE Lang, 1970
 Subfamily PAGURAPSEUDINAE Lang, 1970
 Genus *Pagurapseudes* Whitelegge, 1901

Pagurapseudes queirosi n. sp.
 (Figs 1; 2)

TYPE MATERIAL. — Holotype: **Vanuatu**. SANTO 2006, stn DB86, Malo Island off Avunaro Point, 15°38.5'S, 167°15.1'E, 13 m depth, 4.X.2006, 1 ♀ (MNHN-Ta 955).

Paratypes: same data as holotype, 14 brooding ♀♀, 14 other ♀♀, 5 ♂♂, 13 juveniles, 24 other specimens (MNHN-Ta 956); 2 brooding ♀♀, 2 other ♀♀, 2 ♂♂, 2 juveniles, 2 other specimens (BMNH.2007.952-961); 2 ♀♀, dissected (coll. R. Bamber). — Stn FB52, Malo Island (Kili Kili), 15°28.2'S, 167°15.0'E, 7 m depth, 5.X.2006, 5 ♂♂, 4 ♀♀, 25 other specimens (MNHN-Ta 957). — Stn DB63, Aégé Island, 15°26.5'S, 167°15.50'E, 21 m depth, 25.IX.2006, 1 ♀ (dissected; not retained).

TYPE LOCALITY. — Vanuatu, Santo, Malo Island off Avunaro Point, 15°38.5'S, 167°15.1'E, 13 m depth.

ETYMOLOGY. — Named after Pedro Fernandes de Queirós, the Portuguese explorer who was reputedly the first European to sight the Vanuatu Islands, in 1606.

DESCRIPTION OF FEMALE

Body (Fig. 1A) typical of a pagurapseudid, pleon skewed to right and curved under pereon; small,



FIG. 1. — *Pagurapseudes queiroi* n. sp.: **A**, holotype ♀, lateral; **B**, cephalothorax, dorsal; **C**, left antennule; **D**, left antenna; **E**, pleotelson and uropods; **F**, right mandible; **G**, distal detail of left mandible; **H**, maxillule; **I**, labial palp; **J**, labrum; **K**, maxilliped; **L**, epignath. Scale bar: **A**, 1 mm; **B**, 0.5 mm; **C-L**, 0.2 mm.

holotype about 3.5 mm long. Cephalothorax (Fig. 1B) slightly narrower anteriorly, 0.9 times as long as wide, with convex anterior margin, rostrum represented by medial group of five teeth; single seta behind ocular lobe, one postero-dorsal pair of simple setae. Eyelobes distinguished with anterior pointed apophysis, eyes present as group of black-pigmented ocelli. Epistome absent. Six free pereonites; pereonite 1 shortest, 0.9 times as long as pereonite 2; pereonite 3 longest, twice as long as pereonite 1; pereonites 4 to 6 subequal, 0.85 times as long as pereonite 3. Pleon of five free subequal pleonites, each pleonite about half as long as pereonite 6. Pleonite 1 only bearing pleopods, remaining pleonites with pair of small ventral tubercles bearing single seta. Pleotelson (Fig. 1E) semicircular, about as long as last two pleonites together, 1.3 times as long as wide, with plumose lateral, and simple dorsal and posterior setae as figured.

Cephalothorax and pereonites with pale brown colouration dorsally, darkest along anterior margin, with central pale band. Same colouration as patches on proximal antennule peduncle article.

Antennule (Fig. 1C) proximal peduncle article 3.7 times as long as wide, with conspicuous inner spine-like apophyses accompanied by simple setae, no distal apophysis; second peduncle article 0.4 times as long as first; third article 0.15 times as long as second, fourth article one-third length of third. Main flagellum of three segments, with single aesthetascs on each segment; accessory flagellum of one segment, distally not quite reaching distal edge of second segment of main flagellum.

Antenna (Fig. 1D) with two basal articles fused into wide proximal peduncle article bearing two setose inner apophyses and paired outer-distal plumose setae; second article as long as wide; third peduncle article twice as long as second, fourth three-times as long as second. Flagellum of four segments, distal segment with four distal setae.

Labrum (Fig. 1J) bilobed, rounded, sparsely setose. Right mandible (Fig. 1F) with tricuspid pars incisiva, setiferous lobe with four variously crenulate setae, pars molaris round, blunt, simple; palp of three articles, proximal article with long, plumose inner seta, second article longest, 2.3 times as long as proximal article, with eight inner setae in two

rows; third article three-quarters as long as second, with eight progressively longer setae in distal half, distal seta longer than article. Left mandible as right but with narrow, bicuspid lacinia mobilis (Fig. 1G). Labium (Fig. 1I) typically marginally setose, palp with two distal setae. Maxillule (Fig. 1H) inner endite with four simple distal setae, outer endite with nine distal spines, outer margins sparsely setose; palp of two articles with indistinct articulation, distally with four simple setae. Maxilla damaged in preparation, with rostral row of about 20 simple setae, fixed endite with trifurcate, simple and bifurcate setal groups. Maxilliped (Fig. 1K) basis with four distal plumose setae; proximal palp article with simple outer margin with two plumose setae, inner margin naked; second article with one long plumose seta on outer margin, three shorter simple spines and five plumose setae along inner margin; third article with one distal and three inner marginal simple setae; distal article with 12 simple inner-marginal and distal setae in two rows, paired outer subdistal simple setae; endite (not figured) with finely setose outer margin, simple distal spines, three coupling-hooks. Epignath (Fig. 1L) large, inner lobes conspicuous, distal spine proximally setose and with short marginal spinules in distal half.

Chelipeds (Fig. 2A) showing no conspicuous dimorphism. Compact basis 1.25 times as long as wide, with subdistal, ventral plumose seta and ventral marginal spines; exopodite absent. Merus subtriangular, inner and distal plumose setae and ventral simple seta. Carpus elongate, 1.6 times as long as wide, widening distally, with numerous fine setae but no spines or apophyses. Propodus robust, 1.5 times as long as wide, setose as figured; fixed finger with saw-like row of small teeth distally on cutting edge; moveable finger stout, curved.

Pereopod 1 (Fig. 2B) longest, with stout basis twice as long as wide, dorsal margin bearing nine plumose setae interspersed amongst triangular tooth-like apophyses, ventral margin with six ventral and distal plumose setae; exopodite present (Fig. 2C), large, distal article with 13 plumose setae. Ischium one-quarter as long as basis, with naked dorsal margin, simple ventral setae and single ventrodistal plumose seta. Merus 0.9 times as long as basis, dorsally with stout plumose seta on small marginal tubercle in

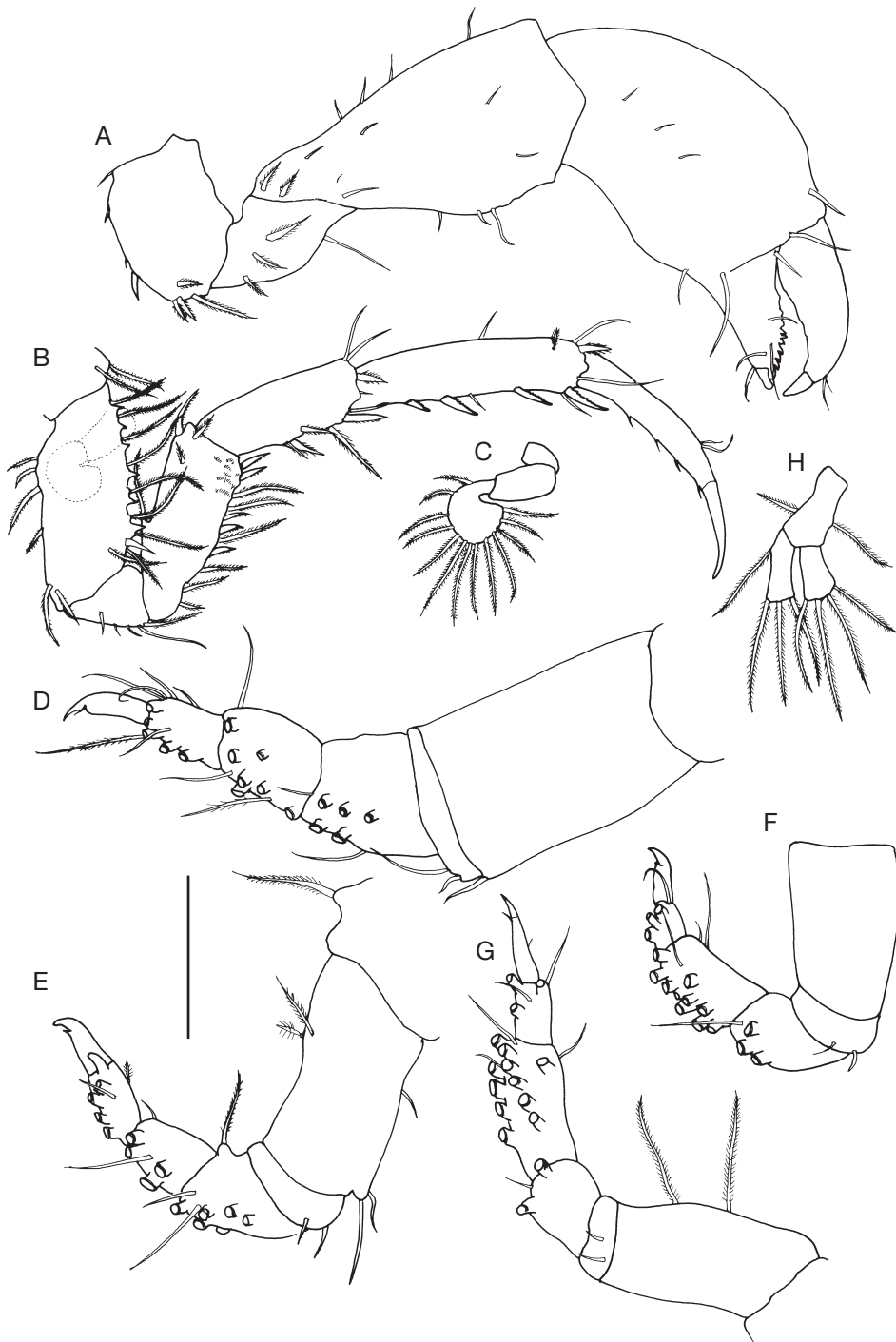


FIG. 2. — *Pagurapseudes queiroi* n. sp.: **A**, left cheliped; **B**, pereopod 1 (exopodite indicated by dotted lines); **C**, exopodite of pereopod 1; **D**, pereopod 2; **E**, pereopod 3; **F**, pereopod 4; **G**, pereopod 6; **H**, pleopod. Scale bar: A, B, H, 0.2 mm; C-G, 0.1 mm.

proximal half, ventral margin with plumose setae and spines, microtrichia mainly in distal half. Carpus shorter than merus, with ventral and distal plumose setae and ventrodistal spine. Propodus 1.5 times as long as carpus, with four ventral spines each with crenulate anterior face. Dactylus curved, 0.75 times as long as propodus, with fine ventral setae, unguis slender, sharp, 0.6 times as long as dactylus.

Pereopods 2 to 6 similar to each other, progressively shorter, each about one-half to one-third as long as pereopod 1. Pereopod 2 (Fig. 2D) basis stout, 1.4 times as long as wide, with simple ventrodistal seta; ischium with paired ventrodistal setae. Merus, carpus and propodus bearing “sucker-like” spines, generally in two ventral rows, and plumose setae as figured. Merus as long as carpus; propodus 0.75 times as long as carpus; dactylus and unguis appearing to be fused into hook-like claw, with minute inner seta. Pereopod 3 (Fig. 2E) with more setae on basis, dorsodistal plumose seta on merus. Pereopod 4 (Fig. 2F) shortest, basis 1.6 times as long as wide, fewer “sucker-like” spines on merus. Pereopod 5 as pereopod 4. Pereopod 6 (Fig. 2G) basis with paired, long plumose dorsal setae; dactylus and unguis not hook-like, articulation evident.

Pleopods (Fig. 2H) only present on pleonite 1, biramous, reduced; basis with single dorsal and ventral plumose setae; exopod with outer proximal and three distal plumose setae, endopod with four distal plumose setae.

Uropod (Fig. 1E) biramous, basis with three distal setae; endopod longer than basis, of three segments increasing in length, second segment distally naked, third segment with three stout distal setae and one penicillate seta; exopod of one segment, subequal in length to proximal endopod segment, with two distal setae.

Male closely similar to female, but antennule with more aesthetascs on main flagellum.

REMARKS

Of the five described species of *Pagurapseudes* with three segments in the main flagellum and only one in the accessory flagellum of the antennule, only three have a 3-segmented uropod endopod. *Pagurapseudes dentatus* (Brown, 1956), from the intertidal of South Africa, although generally poorly

described, has five pairs of pleopods, the rami of which are distinctly unequal, and, unlike the case in *P. queiroi* n. sp., the merus, carpus, propodus and dactylus of pereopod 1 are subequal in length. *Pagurapseudes setulosa* Kazmi & Siddiqui, 2001, from Pakistan (depth not given) has four pairs of pleopods, which are without basal setae, numerous “setules” along the lateral margins of the pleotelson, and a distinctly more slender cheliped propodus. *Pagurapseudes razvani* Guțu, 1997, recorded from Indonesia at 5 m depth is more similar to the present species, but is distinguished in having three pairs of pleopods, a three-articled flagellum to the antenna, as well as lateral rows of plumose setae on the cephalon and distinct bifurcate spines adjacent to the dactylus of pereopods 2 and 3.

Using the key of Guțu (1997) to the nine species known at that time, the present species would key out to the type species, *P. spinipes* Whitelegge, 1901; however, that species has four segments in the main flagellum of the antennule (note that, in his text, Whitelegge [1901] included the distal peduncle article in both flagella), and the basis of pereopod 1 has no plumose setae, Whitelegge (1901) describing and figuring only “a few small denticles on the anterior border”.

The only species described since the work of Guțu (1997) are *P. setulosa* (see above), and *P. inquilinus* Bamber, 2007, from 440–450 m depth off New Caledonia, but that species is readily distinguished from *P. queiroi* n. sp. in having seven segments to the antennular main-flagellum, *inter alia*. The large dorsal plumose seta, arising from a distinct tubercle, on the merus of pereopod 1 seems to be unique to *P. queiroi* n. sp.

Genus *Macrolabrum* Băcescu, 1976

Macrolabrum mansoris n. sp. (Figs 3; 4)

TYPE MATERIAL. — Holotype: Vanuatu, SANTO 2006, stn DB63, Aégé Island, 15°26.5'S, 167°15.50'E, 21 m depth, 25.IX.2006, 1 ♀ with 16 manca in shell (MNHN-Ta 958).

Paratypes: same data as holotype, 1 ♀ with 17 manca in shell (MNHN-Ta 959); 1 ♂, 1 brooding ♀

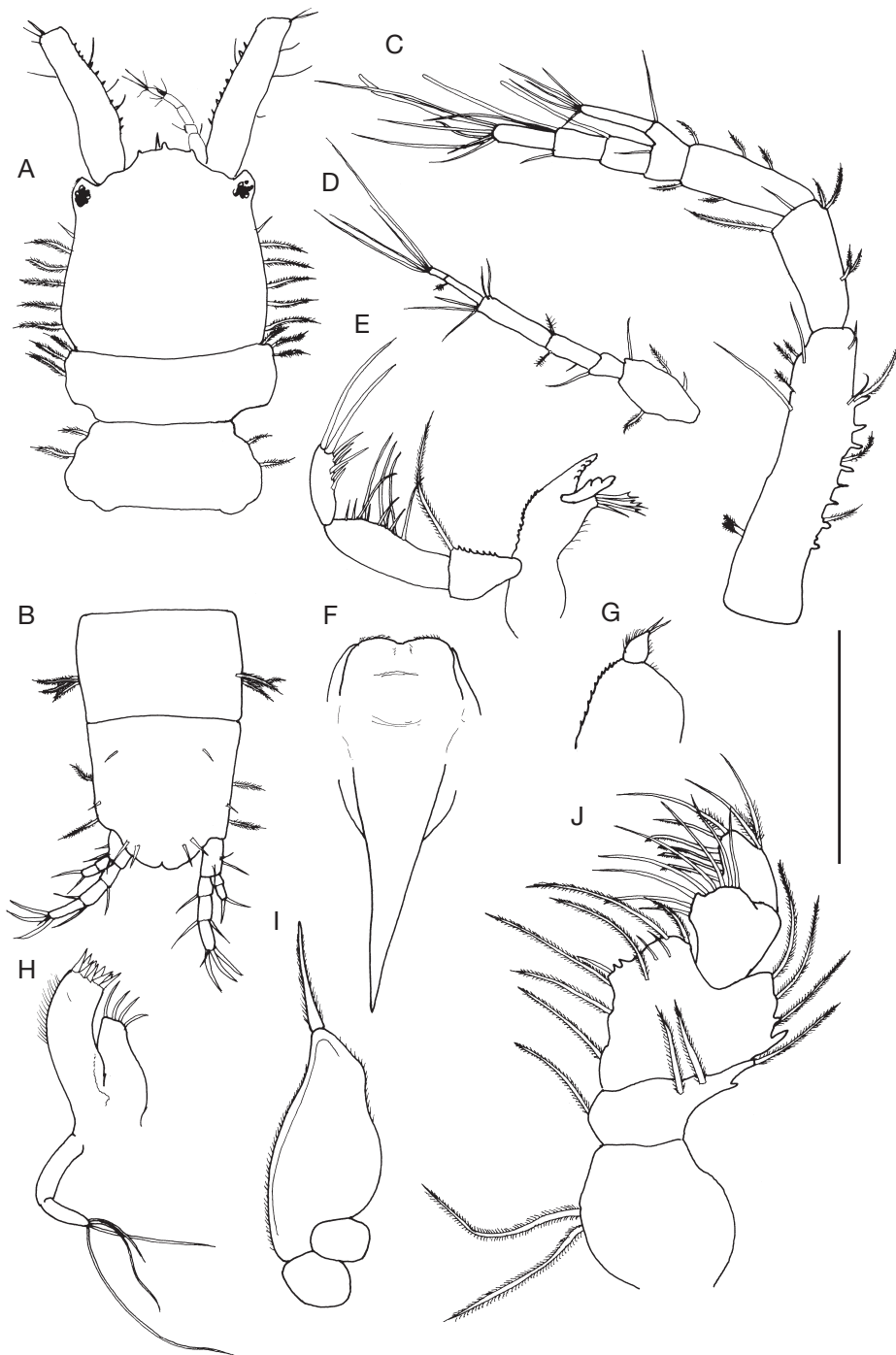


FIG. 3. — *Macrolabrum mansoris* n. sp.: **A**, cephalothorax and pereonites 1 and 2, dorsal; **B**, pleonite 5 and pleotelson, dorsal; **C**, antennule; **D**, antenna; **E**, left mandible; **F**, labrum and epistome; **G**, labium; **H**, maxillule; **I**, epignath; **J**, maxilliped. Scale bar: A, B, 0.6 mm; C, D, 0.3 mm; E–J, 0.2 mm.

(BMNH.2007.962-963); 8 ♀♀ (5 brooding); 2 ♂♂, 2 other specimens, paratypes (MNHN-Ta960); 2 ♀♀ (one with oostegites), 1 ♂, dissected (coll. R. Bamber). — Stn FB52, Malo Island (Kili Kili), 15°28.2'S, 167°15.0'E, 7 m depth, 5.X.2006, 6 ♂♂, 4 ♀♀, 11 other specimens (MNHN-Ta 961).

TYPE LOCALITY. — Off Vanuatu, 15°26.5'S, 167°15.50'E, 21 m depth.

ETYMOLOGY. — *Mansoris* – Latin, a guest or sojourner, noun in apposition.

DESCRIPTION OF FEMALE

Body typical of a pagurapseudid, pleon skewed to right and curved under pereon; small, holotype about 3.8 mm long. Cephalothorax (Fig. 3A) square with straight anterior margin, rostrum represented by truncate extension with medial and lateral tubercles; single simple seta behind ocular lobe, followed by row of five plumose lateral setae. Eyelobes distinguished, eyes present as group of black-pigmented ocelli. Epistome large, exceeding tip of rostrum. Six free pereonites; pereonite 1 shortest, one-third length of cephalothorax, with three anterolateral plumose setae; pereonite 2 1.2 times as long as pereonite 1, with paired anterolateral plumose setae; pereonites 3 to 6 subequal, 1.5 times as long as pereonite 2, with paired anterolateral plumose setae. Pleon of five free subequal pleonites, each pleonite about 0.8 times as long as posterior pereonites and bearing three mid-lateral plumose setae. Pleonites 1 and 2 only bearing pleopods. Pleotelson (Fig. 3B) subrectangular, 1.5 times as long as pleonite 6, as long as its maximum width, with paired plumose lateral setae, paired simple dorsolateral setae and paired posterodorsal setae as figured. No apparent pigmentation (in preserved material).

Antennule (Fig. 3C) proximal peduncle article 4.3 times as long as wide, with row of inner blunt spine-like apophyses accompanied by plumose setae, no distal apophysis; second peduncle article 0.4 times as long as first; third article as long as second, fourth article 0.3 times as long as third. Main flagellum of three segments, with single aesthetascs on each segment; accessory flagellum of one slender segment, distally not quite reaching distal edge of second segment of main flagellum.

Antenna (Fig. 3D) with two basal articles fused into wide proximal peduncle article, without apophyses, bearing single inner and outer plumose setae and two inner simple setae; second article just longer than wide; third peduncle article twice as long as second, fourth three-times as long as second. Flagellum of two segments, distal segment with four distal setae.

Labrum (Fig. 3F) bilobed, rounded, sparsely setose. Left mandible (Fig. 3E) with fine denticulations on outer margin, inner margin finely setose; five rounded denticulations on pars incisiva, robust lacinia mobilis with three rounded denticulations, setiferous lobe with four variously crenulate setae, pars molaris (not figured) round, blunt, corrugated; palp of three articles, proximal article with long, plumose inner seta and row of fine denticulations; second article longest, twice as long as proximal article, with five shorter and five longer inner setae in two rows; third article just longer than first, with six progressively longer setae in distal half, two distal setae much longer than article. Right mandible as left but without lacinia mobilis. Labium (Fig. 3G) marginally denticulate, palp with two distal setae. Maxillule (Fig. 3H) inner endite with four simple distal setae, outer endite with nine distal spines, outer margins sparsely setose; palp of two articles, distally with four simple setae. Maxilla damaged in preparation, with rostral row of about 20 simple setae, fixed endite with trifurcate, simple and bifurcate setal groups. Maxilliped (Fig. 3J) basis with two inner plumose setae; proximal palp article with two spine-like apophyses on outer margin, distal apophysis with plumose seta, distal margin with two plumose setae, inner margin with one plumose seta; second article with proximal apophyses and three plumose setae on outer margin, three plumose setae along inner margin and plumose and simple setae on inner-distal expansion; third article with eight simple setae on inner-distal expansion; distal article with five finely-denticulate inner-marginal setae, single distal and paired outer subdistal setae all plumose along their basal half; endite (not figured) with finely setose outer margin, row of simple linguiform distal spines becoming shorter towards inner margin, two subdistal plumose setae, three coupling-hooks. Epignath (Fig. 3I) large,



FIG. 4. — *Macrolabrum mansoris* n. sp.: **A**, female cheliped; **B**, male cheliped; **C**, pereopod 1; **D**, exopodite of pereopod 1; **E**, pereopod 2; **F**, pereopod 4; **G**, pereopod 6; **H**, pleopod; **I**, uropod, ventral. Scale bar: A-C, 0.4 mm; D-I, 0.2 mm.

inner lobes conspicuous, margins and distal spine finely setose.

Chelipeds (Fig. 4A) with compact basis 1.45 times as long as wide, with two fine dorsoproximal spines, proximal, medial and distal ventral marginal spines and ventrodistal plumose seta; exopodite absent. Merus subrectangular, with ventrodistal spine-like apophysis, single ventral plumose seta and inner row of plumose setae. Carpus elongate, 2.7 times as long as wide, widening distally, with mid-ventral spine-like apophysis, sparse marginal setae, and group of three more robust plumose setae dorsoproximally. Propodus slender, 1.5 times as long as wide, setose as figured; fixed finger with row of small rounded "teeth" interspersed with fine setules on cutting edge; moveable finger (dactylus) slender. Left cheliped marginally more robust than right.

Pereopod 1 (Fig. 4C) longest, with stout basis 1.9 times as long as wide, dorsal margin bearing 13 plumose setae but no apophyses, ventral margin with three proximal and one distal simple setae; exopodite present (Fig. 4D), large, distal article with 14 plumose setae. Ischium one-quarter as long as basis, with two simple ventral setae. Merus 0.8 times as long as basis, with paired dorsodistal simple setae, ventral margin with five plumose and numerous simple setae. Carpus just shorter than merus, with ventral and distal simple setae. Propodus 1.4 times as long as carpus, with three ventral spines, sparse dorsal setae, three ventrodistal setae one of which twice as long as other two. Dactylus curved, almost as long as propodus, with fine ventral setae, unguis slender, sharp, 0.4 times as long as dactylus.

Pereopods 2 to 6 similar to each other, progressively shorter, each about one-half to one-third as long as pereopod 1; merus, carpus and propodus bearing "sucker-like" spines, generally in three ventral rows. Pereopod 2 (Fig. 4E) basis stout, 1.6 times as long as wide, with plumose ventrodistal seta; ischium with four ventrodistal plumose setae; merus 1.7 times as long as carpus, with single dorsal and ventral distal plumose setae; propodus 1.2 times as long as carpus with dorsal penicillate seta and two distal simple setae; dactylus and unguis appearing fused into hook-like claw. Pereopod 3 as pereopod 2, but ischium with only two plumose setae, carpus 1.6 times as long as merus.

Pereopod 4 (Fig. 4F) basis 1.5 times as long as wide, with three dorsal plumose setae, ventrodistal plumose seta and shorter simple seta; ischium with three ventrodistal setae; carpus 1.3 times as long as merus with two ventral plumose setae; propodus one-third as long as carpus. Pereopod 5 as pereopod 4 but with plumose setae on ventral margin of basis, penicillate seta mid-dorsally on basis. Pereopod 6 (Fig. 4G) basis with three plumose ventral setae and one submarginal dorsal plumose seta; merus and carpus with one and four dorsal plumose setae respectively; propodus with two slender distal spines.

Pleopods (Fig. 4H) only present on pleonites 1 and 2, biramous, basis with three ventral plumose setae; exopod with nine plumose setae, endopod with naked dorsal margin and six plumose setae.

Uropod (Fig. 4I) biramous, basis with one simple and one plumose outer setae and fine dorsodistal seta; endopod longer than basis, of three segments increasing in length, first and second segments with one and two distal setae respectively, third segment with three robust distal setae and one penicillate seta; exopod nearly as long as proximal two segments of endopod, of two segments subequal in length with two distal setae.

Male closely similar to female, chelipeds significantly dimorphic, one being much larger than the other (Fig. 4B); of six males with two attributable chelipeds each, four had the right cheliped larger, two the left. Smaller cheliped substantially similar to that of female. Larger cheliped (Fig. 4B) merus with two robust, plumose setae adjacent to ventral apophysis; carpus only 1.7 times as long as wide, with spine-like apophysis subdistally on dorsal margin; propodus massive, 1.5 times as long as carpus, with numerous distal simple setae as figured, fixed finger with blade-like cutting edge, dactylus with spinules along cutting edge.

REMARKS

Within the Pagurapseudinae, the features of pronounced cheliped dimorphism in the male, conspicuous epistome exceeding anterior margin of cephalothorax, the basis of pereopod 1 conspicuously wider than subsequent articles, large plumose setae on the maxilliped palp, and robust distal setae or

spines on the uropod endopod are all characteristic of the genus *Macrolabrum* (see Guțu 1997; Bamber 2007).

Of the seven species of *Macrolabrum* described previously (see Guțu 1997; Bamber 2005, 2007), only three (*M. distonyx* Bamber, 2007, *M. rugosus* Guțu, 1997 and *M. trichopteroides* Băcescu, 1976) show fusion of the basal peduncle articles of the antenna, but the last two of these both have a two-segmented endopod and one-segmented exopod to the uropod, while *M. rugosus* is without pleopods. *Macrolabrum distonyx*, from deep water off New Caledonia, has a three-segmented endopod and two-segmented exopod to the uropod, but that species has a triangular, denticulate rostrum, only two segments in the main flagellum of the antennule, much shorter antennal articles, less setation of the mandibular palps and pleopods, a more robust smaller cheliped and more denticulations on the outer margin of the maxilliped palp, *inter alia*.

No other species of *Macrolabrum* has the form of rostrum shown by *M. mansoris* n. sp., or three segments in the main flagellum of the antennule.

DISCUSSION

There are now five species of the Pagurapseudidae described from the New Caledonia region, four of these of the subfamily Pagurapseudinae, inhabiting empty gastropod shells. Distinctions between congeneric species are described above; in addition, the previously described *Pagurapseudes inquilinus* and *Macrolabrum distonyx* were found in much deeper waters (440–515 m depth) than the present two species (7 to 21 m depth), so are unlikely to occur sympatrically.

Macrolabrum mansoris n. sp. was sympatric with *Pagurapseudes queiroi* n. sp., using the same array of small gastropod shells: these two are most readily distinguished (without dissection) by the lack of dorsal pigment, the row of plumose setae on the cephalothorax, and (when present) the robust larger male chela in *M. mansoris* n. sp. *Pagurapseudes queiroi* n. sp. is further distinguished from *M. distonyx* by the latter having highly dimorphic chelipeds more characteristic of that genus, and

only two segments in the antennular main flagellum. *M. mansoris* n. sp. is readily distinguished from *P. inquilinus* by the latter having seven segments to the antennular main-flagellum.

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